

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

## PCT

### NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

To:

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Date of mailing  
(day/month/year)

22.06.2004

Applicant's or agent's file reference  
P3121-WOGC13

#### IMPORTANT NOTIFICATION

International application No.  
PCT/EP 03/02828

International filing date (day/month/year)  
18.03.2003

Priority date (day/month/year)  
27.03.2002

Applicant  
COMPOSHIELD AS et al

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international  
preliminary examining authority:



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# PATENT COOPERATION TREATY



## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P3121-WO/GC13	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/02828	International filing date (day/month/year) 18.03.2003	Priority date (day/month/year) 27.03.2002
International Patent Classification (IPC) or both national classification and IPC E04H9/12		
Applicant COMPOSHIELD AS et al		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 3 sheets.</p>
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>

Date of submission of the demand  01.09.2003	Date of completion of this report  22.06.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Flores Hokkanen, P  Telephone No. +49 89 2399-2525 

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/EP 03/02828

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-22 as originally filed

**Claims, Numbers**

1-23 received on 18.03.2004 with letter of 14.03.2004

**Drawings, Sheets**

1/17-17/17 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/EP 03/02828**

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-23
	No: Claims	
Inventive step (IS)	Yes: Claims	1-23
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-23
	No: Claims	

2. Citations and explanations

**see separate sheet**

**Re Item V**

**Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Reference is made to the following documents:

D1: DE 37 16 795 C

D2: DE 35 21 884 C

D3: DE 30 03 988 A

2. Document D1 is regarded as being the closest prior art to the subject-matter of independent claim 1, and discloses (see col. 2, line 24 to col. 3, line 22 and figure):

*A structure comprising a walled freight container 1 enclosing an interior volume of space, the container being at least partially clad internally and/or externally (the container is clad externally) with a barrier structure (of poured concrete), and means 9 for human entry into and exit from the interior space of the container being located in a wall of the container and, if necessary for such entry and exit, also in the barrier structure (with reference sign 9 a form is described to allow for an opening to be defined in the barrier structure after the concrete is poured, see also col. 3, lines 16-19).*

The subject-matter of independent claim 1 therefore differs from this known closest prior art D1 by:

- the barrier structure being constructed from a plurality of interconnected panels, of matrix material incorporating reinforcement elements.

The subject-matter of independent claim 1 is therefore novel (Article 33(2) PCT).

3. The problem to be solved by the present invention may therefore be regarded as providing a structure allowing a simplified placing and an improved design flexibility for given impacts and loads.
4. The solution to the above cited problem is considered as involving an inventive step (Article 33(3) PCT).

Document D2 also discloses a freight container with a concrete barrier structure which is poured around the container after it has been lowered under ground level. D3 discloses a prefabricated box-shaped structure with an external formwork where the concrete is afterwards poured.

No indications are therefore found which would lead the skilled person to provide a barrier structure as a plurality of interconnected panels according to claim 1.

In this way, the panels and the freight container can be transported separately to where the structure is to be placed. Thus, no formwork for concrete casting is necessary. The panels can also be previously fabricated according, for example, to a desired degree of protection for occupants inside the structure.

5. Claims 2 to 23 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

## Claims:

1. A structure comprising a walled freight container enclosing an interior volume of space, the container being at least partially clad internally and/or  
5 externally with a barrier structure, the barrier structure being constructed from a plurality of interconnected panels of matrix material incorporating reinforcement elements, and means for human entry into and exit from the interior space of the container being located in a wall of the container and, if necessary for such entry and exit, also in the barrier structure.  
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2. A structure as claimed in claim 1 wherein the barrier structure is in the form of a wall.
3. A structure as claimed in claim 1 or claim 2 comprising a freight  
15 container in the form of a six-sided box having top, bottom, side and end walls, one end wall incorporating at least one door, at least the top, side and end walls including the door(s) thereof being clad internally of the container with a barrier structure being constructed from a plurality of interconnected panels of matrix material incorporating reinforcement elements, the panels  
20 being fixed to the container walls, the structure being transportable as a unit.
4. A structure as claimed in any of the preceding claims wherein the panels are interconnected by discrete interconnection elements.
- 25 5 A structure as claimed in any of the preceding claims wherein the barrier structure includes panel support means for reducing the deformation of the barrier structure when subjected to a blast and/or ballistic force.
- 6 A structure as claimed in any of the preceding claims which includes  
30 means for anchoring the structure in the ground or clamping the structure to the ground.

7. A structure as claimed in any of the preceding claims wherein the matrix material of the panels of the barrier structure is cementitious, ceramic, metallic or resinous.

5 8. A structure as claimed in any of the preceding claims in which the reinforcement elements present in the matrix material of the panels of the barrier structure comprise elongated or sheet-like main reinforcement elements and secondary compact shaped reinforcement elements distributed in the matrix material surrounding the main reinforcement.

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9. A structure as claimed in claim 8 wherein the main reinforcement is selected from one or more of the following, namely rod; wire; cable; interlacings of rod and/or wire and/or cable; mesh; sheet or plate; and perforated sheet or plate materials

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10. A structure as claimed in claim 8 or claim 9 wherein the secondary reinforcement is selected from one or more of the following, namely lumps, fibres, whiskers and flake materials

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11.. A structure as claimed in any of the preceding claims wherein a face of the barrier structure is clad with sheet, plate or tile elements.

12. A structure as claimed in any of the preceding claims wherein there is a gap between a wall of the container and its barrier structure cladding.

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13.. A structure as claimed in claim 12 wherein the gap is bridged by filler material and/or by discrete connector elements interconnecting the container wall and barrier structure.

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14.. A structure as claimed in claim 13 wherein the filler material is a foam, particulate or fibrous material.

15. A structure as claimed in any of the preceding claims wherein the walls of the container are of metal, and/or wood, and/or fibre filled resin.



16. A structure as claimed in claim 15 wherein the container is a 6-sided box.
- 5 17. A structure as claimed in claim 15 or claim 16 wherein the barrier structure is substantially coextensive with at least one side wall of the container.
- 10 18. A structure as claimed in claim 15 or claim 16 wherein the barrier structure is substantially coextensive with all side walls of the container.
19. A structure as claimed in any of claims 15 to 18 wherein the barrier structure is substantially co-extensive with a top wall of the container.
- 15 20. A structure as claimed in any of claims 15 to 19 wherein the barrier structure is substantially co-extensive with a bottom wall of the container.
- 20 21. A structure as claimed in any of the preceding claims wherein the walled container comprises an inner and an outer wall, and the barrier structure is interposed at least between the inner and outer walls.
22. A collection of two or more structures as claimed in any of the preceding claims, positioned in a desired relationship with each other.
- 25 23. A collection of structures as claimed in claim 22 wherein at least two containers abut each other.